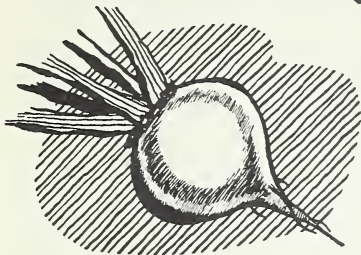


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Growing Table Beets



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Table, or garden, beets are grown over a wide range of soils and climate and are popular because of their attractiveness as food and because they are relatively easy to grow. Since beets do not thrive in very hot weather they are grown in the southern third of the United States mainly as fall, winter, and spring crops; in the middle third they are grown for harvest in early summer or late fall; and in the northern third as summer and early fall crops. In 1960 about 4,500 acres were grown in the United States for sale fresh and 15,000 acres for processing. Great quantities are also grown in the millions of home gardens.

Soils, Fertilizers, and Lime

Table beets are grown on many different kinds of soil ranging from mucks, sands, and sandy loams to the heavier soils such as silt loams. As a rule, however, it is difficult to get good stands on very heavy soils or those which become packed or crusted after a sprinkling or a rain. Later growth also is often poor on many heavy soils that produce very satisfactory yields of certain other farm and garden crops. A deep, friable soil is even more desirable for beets than for many other vegetables. For early crops, a light, well-drained soil that warms up early in the spring is necessary. For the later crops the heavier soils are also satisfactory.

For best results, the soil should be deep, and medium to high in organic matter. Green manure crops, crop residues, animal manures, or composts—whichever is most practicable—should be used to help maintain soil productivity. No amount of chemical fertilizers can overcome the effects of serious deficiencies in soil structure resulting from lack of organic matter.

In intensive culture, as in home gardens or truck gardens, about 1,000 to 2,000 pounds per acre ($2\frac{1}{2}$ to $4\frac{1}{2}$ pounds per 100 square feet) of fertilizer analyzing 5 to 7 percent nitrogen, 10 to 12 percent phosphoric acid, and 5 to 6 percent potash is generally recommended. On some light soils low in potash, 5-10-10 is used. In large-scale plantings rates of application are more often 500 to 1,000 pounds per acre although 1,500 to 2,000 pounds is used on some farms. In the Great Lakes States a high proportion of potash is common, such as 4-8-8,

or the double strength 8-16-16. On muck soils especially, high potash and low nitrogen is the rule. When the crop is about half grown, a topdressing of 150 to 200 pounds per acre of nitrate of soda, or equivalent of other soluble nitrogen, is applied by many farmers and gardeners to hasten growth. In some districts or localities, however, soil conditions may require a rather different treatment. Growers should consult local agricultural advisers for any special recommendations.

Beets are highly sensitive to soil acidity but are relatively "salt tolerant." On most soils beets grow best at a soil acidity range of about pH 6.0 to 6.5 although they will tolerate neutral and, in some districts, definitely alkaline soils. The soil acidity should be determined by an accurate test. If it is more than very slightly acid, ground limestone should be applied to lower the acidity (raise the pH value) to the range indicated. Ground limestone works more slowly than hydrated lime or burned lime but is preferred because it is less caustic, easier to handle, and cheaper. Many States maintain soil testing services. County agents can furnish instructions for taking soil samples and shipping them to State laboratories for determining the lime requirement.

Varieties

Globe-shaped or only slightly flattened beets are the most popular in the United States. The old Flat Egyptian, formerly favored as a first-early beet is now little grown because it is not appreciably earlier than good strains having only slightly flattened to nearly globular roots. Crosby Egyptian and Early Wonder are generally recommended when rapid attainment of marketable size is important. Both are slightly flattened, and have alternate zones of purplish red and purplish pink flesh in warm weather. Plantings that reach the harvest stage in cool weather have darker flesh color with less prominent differences in color between the zones.

Where quick maturity is not important and for processing purposes, Detroit Dark Red and strains developed from it such as Perfected Detroit are most commonly grown. The roots are nearly globular. The flesh color of these Detroit strains is a darker and less purplish red than in the early varieties named above. Although these will have light-colored zones when grown in hot weather, the zones are not so light as in the early varieties. When matured in cool weather

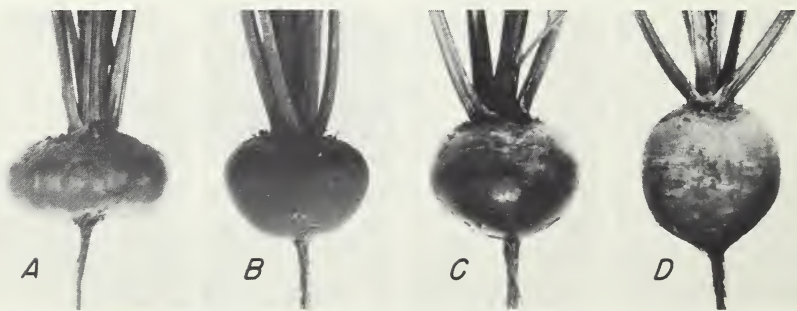


FIGURE 1.—Table beets. A, Flat Egyptian; B, Crosby Egyptian; C, Early Wonder; D, Detroit Dark Red.

the interior is very dark red with inconspicuous zoning. Upon cooking, these color zones largely disappear.

Planting and Culture

Since young beet seedlings are small and weak it is often less easy to get a good stand of beets than of many other crops. To favor these weak seedlings the soil before planting must be worked into a good friable condition, free of trash, clods, and surface irregularities. The seed is covered as deeply as 1 inch in sandy soils, about $\frac{3}{4}$ inch in sandy loams, and not deeper than $\frac{1}{2}$ inch in heavier soils. Uniform correct depth of covering is especially important.

The distance between rows depends largely on local conditions and equipment available for planting and cultivating the crop. For small plots worked by hand, rows may be as close as 12 inches. For tractor cultivation they are commonly 18 to 20 inches apart or in paired rows on beds for drainage or irrigation 40 inches apart on centers. Seeds should be sown at the rate of 5 or 6 per foot of row, 10 to 12 pounds per acre or 1 ounce for 100 feet of row.

Beet "seeds" as commonly planted are not single seeds but fruits containing several seeds. Therefore it is necessary to pull out the excess plants to prevent crowding in the row. Thinning should be done as soon as the seedlings are large enough to be handled easily and before they greatly exceed 2 inches in height. Thinning after the plants become larger than that may damage those remaining. Three to four plants per foot of row should be left upon final thinning.

Beet seedlings can be started in a plant bed, sown 4 or 5 seeds per inch in rows 3 inches apart, then transplanted to the garden 3 inches apart in the row when they are 2 to 3 inches high. This method is rarely used now because of the great amount of hand labor required.

In most districts it is safe to plant beets 3 to 4 weeks before the average date of the last killing frost in the spring. Unless too hot weather will be encountered by the crop, plantings can be made any time from then onward until about 6 weeks before the average date of the first frost in autumn. In the middle and southern parts of the country where summer temperatures are high, spring plantings are discontinued about 6 to 8 weeks after the average date of last frost. Plantings can be resumed 60 to 90 days before frost.

Shallow cultivation (or hoeing) to control weeds and to keep the surface loosened up is the only cultivation required. The need for cultivation and hand weeding can be reduced by spraying the weeds between the rows and the beets when the first 4 or 5 true beet leaves have formed. Use 2 pounds of common salt per gallon of water at 70 to 100 gallons per acre (1 quart per 100 feet of row if rows are 12 inches apart).

Harvesting, Handling, and Storage

As grown for fresh market beets are usually harvested when $1\frac{3}{4}$ to 2 inches in diameter, although roots smaller and larger than these sizes are to be found on the markets.

Immediately after the beets are pulled from the soil they should be

graded and tied in bunches, putting only beets of similar size and appearance together in a bunch. Dead or damaged leaves should be removed as they are bunched. It is well to put the bunches into field boxes and remove them promptly to the packinghouse or shipping point where they can be washed thoroughly in clean water and packed for shipment.

Beets for processing are largely harvested by machines that remove the beets from the soil, cut off the tops, and deliver the roots in bulk into trucks which haul them to the factory.

Beets maturing in late fall after the weather has become cool can be stored successfully in cool, moist root cellars as long as 3 to 4 months. The plants will stand frost and mild freezing but must be taken from the field before hard freezing occurs. For long storage, the tops should be cut off close to the roots, and all diseased or decaying matter sorted out. Slatted crates or baskets are good containers but large bins are not. The relative humidity of the air of the storage space should be 95 to 98 percent to prevent excessive shrinkage. The temperature should be kept as near 32° F. as possible, taking care that no freezing of the roots occurs. If the temperature is as high as 45° the storage life of the beets will be rather short. Commercial cold storage at 32° and 95 to 98 percent relative humidity is satisfactory.

Bunch beets with the tops on may be stored at 32° and 95 to 98 percent humidity for 10 to 15 days.

Fall beets are sometimes stored in outdoor "pits" covered with straw and soil, but storage losses are often high. For detailed information on storage of beets, see Farmers' Bulletin 1939, Home Storage of Vegetables and Fruits, obtainable from the Office of Information, United States Department of Agriculture, Washington, D. C., 20250.

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